

EMBARQ's Program for Clean Transport in Mexico City: Where is LPG?

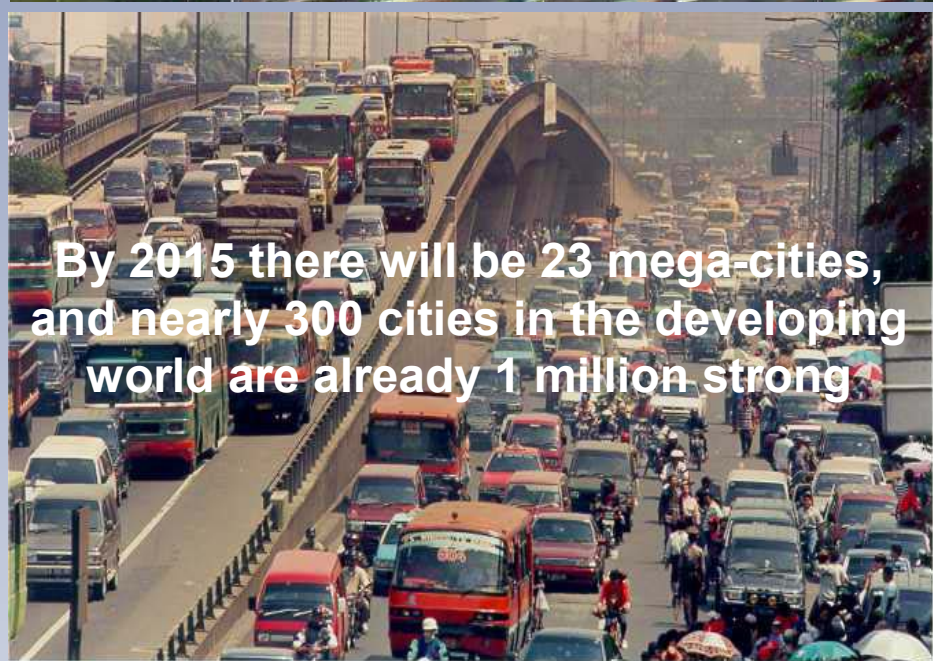
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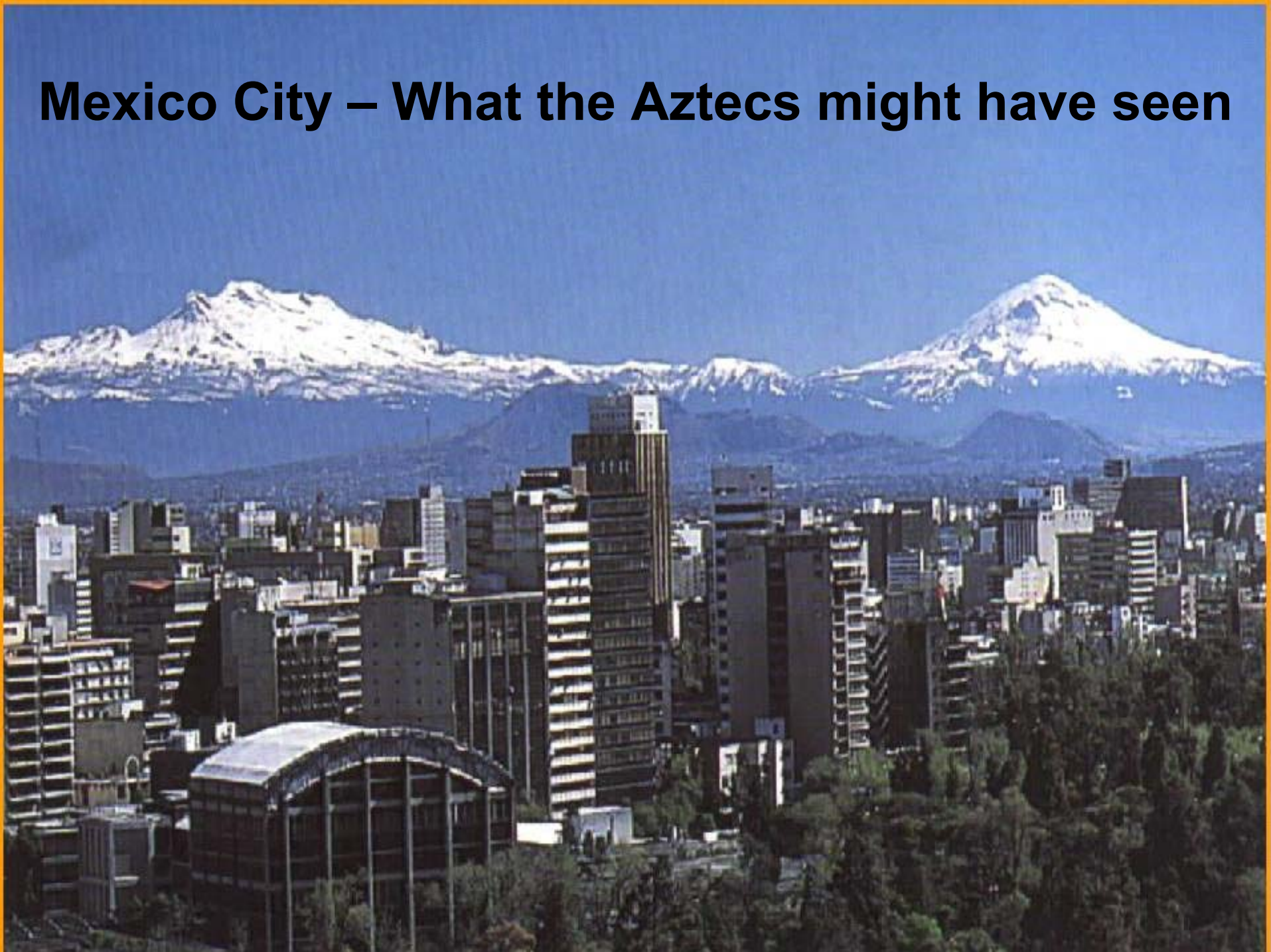


- Created by Shell Foundation
- Mission to work closely with empowered forces in urban areas to solve transport/environment problems
- Working in Mexico City (below)
- Opening soon in Shanghai (left)

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Mexico City – What the Aztecs might have seen





The Present Model:

Cars and...
Congestion



Mexico City

- One of worlds three or four most polluted cities
- Massive congestion
- Hectic public transport carries 75% of all trips
- Small mini-buses carry more than 2/3 of “public”
- Metro carries most of rest
- Would you ride around in this?

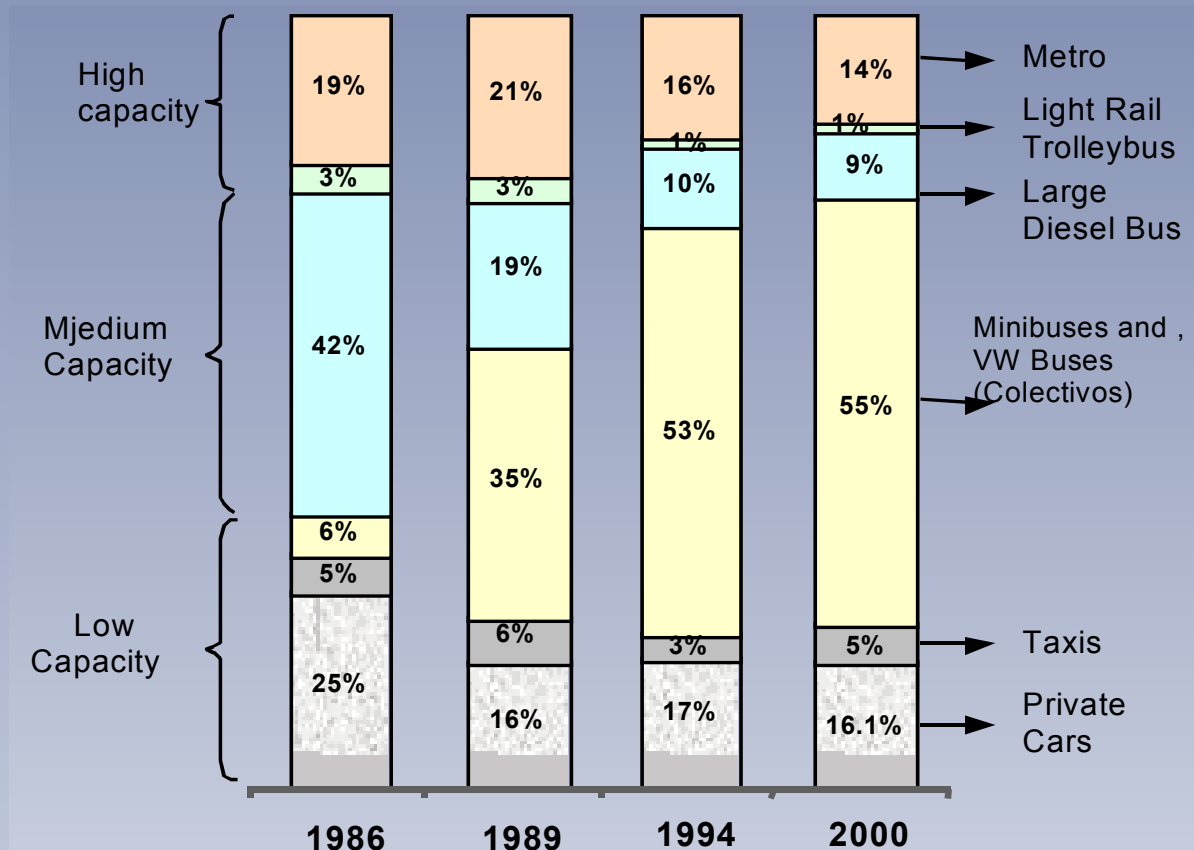
Mexico City: Political Chaos of the Past Hindered Sustainable Transport



- Policy makers in silos preventing effective collaboration
- Political neglect of the bus system
- Little effort to Integrate public modes
- Road planning cutting wide swaths through residential neighborhoods
- Roads filled up a few years after opening
- Little cooperation with surrounding jurisdictions
- Little involvement of NGOs or the private sector

Features of Mexican Traffic

The Rise and Fall of Buses



Modal Shares of Trips in Mexico City Region

- Rise of colectivos in mid 1980s
- Purposeful neglect of large public system
- Small car share
- Goal for 2010: 20 % large buses?
- LPG Fits where?

Features of Mexican Traffic

Playing chicken with the bus in the counter flow lane



Bovine Rapid Transit



Mexico City – What We Usually See, or Don't See

May 31, 2002

“This is the first public-private partnership created to tackle the problems of urban transport from an integrated perspective. Through this partnership we hope to develop a strategic vision, of how to reduce traffic congestion and improve air quality in Mexico City.”

**Claudia Sheinbaum,
Secretary of Environment**

Mexico City

Putting Words And Money To Work

Launched: 31 May, 2002; Formal MOU between *EMBARQ*/Mexico City

Participants: City, State, Federal; foreign/national private; WB/GEF, NGOs

Funding: \$1 million from *EMBARQ* leveraging \$13 million World Bank project
Also Hewlett Foundation, Environment Canada, possibly US EPA

Vehicles: Advanced buses from Volvo, DC, Scania, Eletrabus, FAW and Ankai (China); fuel from Shell/Pemex and Ecomex

Specific activities planned/underway (2003-2005)

- Re-structure system of large buses, metro, colectivos, etc.
- Launch Bus Rapid Transit on 3 to 4 corridors, with careful travel demand surveys
- Compare emissions, fuel consumption, maintenance and costs of clean diesel & CNG
- Harmonize pollution, transport, and climate plans

Further Opportunities – the fuel tank and parking lot are both open:

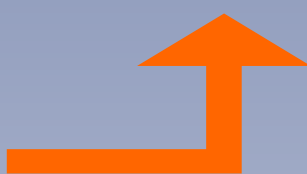
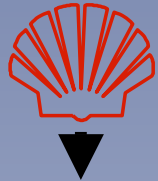
- Testing additives and other fixes for existing Diesel and gasoline
- Cleaning up the mini-buses and taxis
- Spreading BRT and clean diesel to other Mexican cities



Institutional Participation



Introduction of Climate Friendly Transportation Measures in the MCMA



Estado de México



Sec. Of Ecology
Sec of Communications
Sec. Of Transport

**Federal Government
SEMARNAT**

Centro de Transporte
Sustentable

Project
Implementation
Unit

SETRAVI
SEDIVI
RTP
STE



Gobierno del Distrito Federal
México La Ciudad de la Esperanza



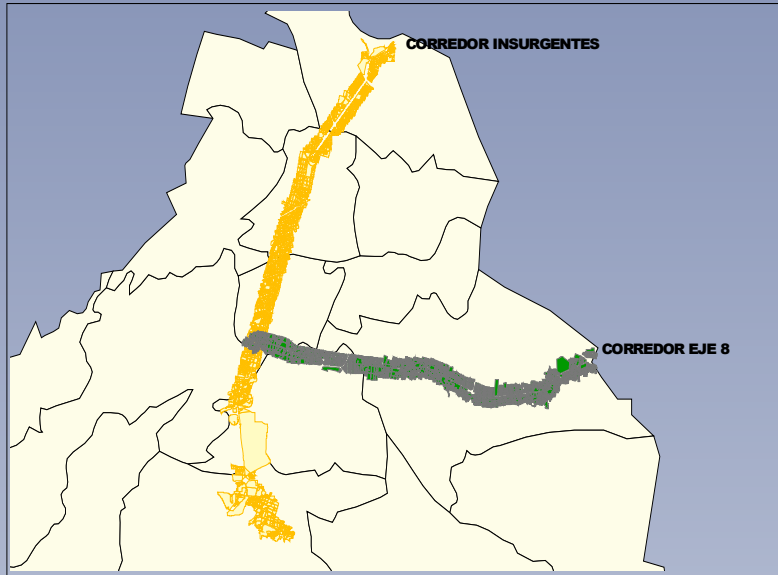
**German
Trust
Fund**

PHRD



Sustainable Transportation Solutions for Mexico City

Bus Corridor System



High Capacity, Clean Transport



Modal Shift



New Social Behaviors

Better Fuels



Sustainable Transport:

How does LPG for Mexico City match up?

Environmental sustainability – health of future citizens

- Very low emissions per passenger-km or bus-km
- Attractive and fast alternative to gasoline and CNG

Economic sustainability (efficiency and robustness)

- Much less costly than CNG
- Affordable fuel overall
- Has a distribution infrastructure – of sorts

Social sustainability (equity)

- Doesn't belch black smoke in poor neighbourhoods
- Infrastructure relatively simple

Governance sustainability: requirements

- Clear standards on conversions, OEMs, fuels
- Policy permitting fueling at normal stations -- NO
- Clear long-term taxation policy

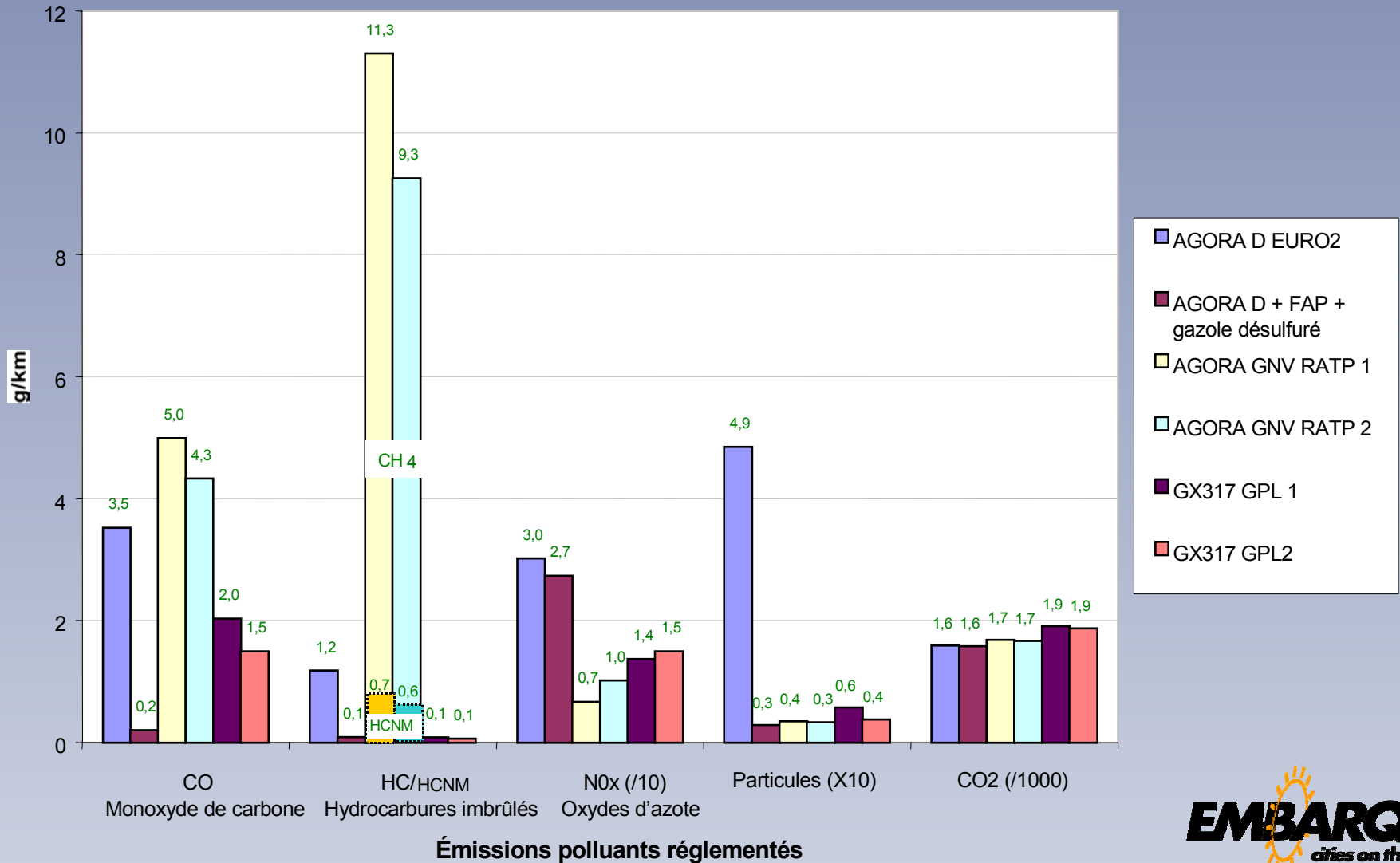


LPG Meets the Criteria in a cost-effective way

A Bus Named Desire

Results of RATP(Paris) Tests

Résultats UTAC sur cycle Ademe-RATP





We Were Encouraged by the LPG Record as a Clean Fuel

- **Met with Copenhagen and Vienna authorities (also Paris)**
- **Impressed with operating data**
- **Paris tests gave good emissions**
- **Discussed with Shell Gas and others the world-wide outlook**
- **Impressed by low OEM emissions in Ford and GM Vehicles**
- **Decided to press for LPG in Mexico**



We Wanted LPG Buses in our Tests, but We were Discouraged

- **Informal Distribution Network**
- **Butane/propane mix variable**
- **Filling stations in hard to get places -- none in gasoline stations**
- **Existing converted transit vehicles of dubious quality with little evidence of real emissions reductions**
- **No bus manufacturers willing to lend/give buses for tests**



Conclusions: Mexico City May Get LPG Right

Strong Governance and Political Will

- Negotiations with fuel, car interests
- Performance and emissions tests
- Broad communications and outreach



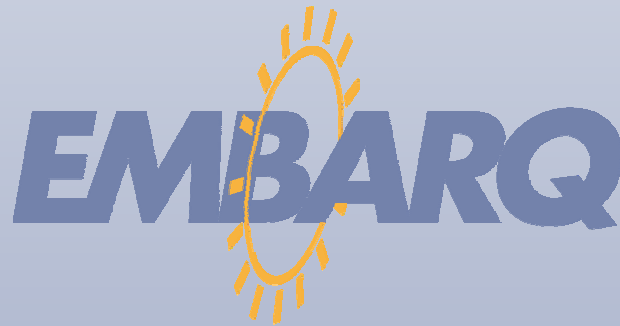
First Steps

- Pick vehicles carefully: taxis, fleets, some private cars
- Improve fuel quality (propane/butane mix), availability
- Publicize performance and emissions results

Real Challenges

- Developing a long-range fuels strategy
- Exploiting long-term fuel surpluses
- Cleaning up all existing colectivos and large buses

Most Difficult Challenge is Persistence and Patience



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